

**REMARKS**

Claims 7, 10, 12-15, 20-25, 28-30, 33, 35-37 and 40-45 are pending. Claims 7, 10, 20, 21, 22, 35, 40 and 41 are amended herein, and new claims 44 and 45 are added. Support for the claim amendments is discussed herein below. Reconsideration of the current rejections is respectfully requested in light of the remarks and amendments herein.

***Claim Rejections 35 U.S.C. § 103(a)***

Claims 7, 10, 12, 13, 20-25, 28-30, 33, 40, 42 and 43 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer (U.S. Patent No. 6,018,617) in view of Bloom (U.S. Patent No. 5,597,312) and further in view of Erickson (U.S. Patent No. 5,902,114). Claims 14, 15, 35-37 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweitzer and Bloom in further view of Wen (U.S. Patent No. 6,341,959).<sup>1</sup>

**Claim 7**

Claim 7 recites a computer-implemented method of automatically generating a mathematical word problem assessment item. To expedite prosecution, claim 7 has been amended to specifically recite generating an assessment item using a processor including automatically generating a text phrase positioned between a first numerical value corresponding to the first number variable and a second numerical value corresponding to the second number variable based on the determined relationship, wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on

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<sup>1</sup> It is noted that the rejection of dependent claims 14, 15 35-37 and 41 is facially deficient insofar as it alleges that Sweitzer and Bloom teach all the limitations of independent claims 10 and 22 (Office Action at p. 17) when it is clear from the Office's own admissions that Sweitzer and Bloom do not disclose all of the limitations of independent claims 10 and 22, even in their forms prior to being amended herein.

the determined relationship. This amendment is supported throughout the specification including paragraphs 0011, 0017, 0018 and 0021 of the published application, for example, as well as in the preambles of the claims.

It is respectfully submitted that the method of claim 7 is patentable over the combination of Sweitzer and Bloom and Erickson. In particular, these references, either singly or in combination, do not disclose or teach using a processor for automatically generating a text phrase positioned between a first numerical value corresponding to the first number variable and a second numerical value corresponding to the second number variable based on the determined relationship, wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship, as required by claim 7. Col. 9, lines 61-63 cited by the Office is explicitly contrary to automatic text generation for a word assessment problem and states and indicates that *the user* types in such text (emphasis added):

As can be seen by reference to FIG. 3, using an editing window, *the user* selects the problem type (e.g., multiple choice, free response) and lays out the elements of the problem with menu and dialog choices. He or she *keys in the text for the question, answer, distractor, and key sections in a fully style-enabled text editor.*

Similarly, the disclosure of Bloom is contrary to automatic text generation as claimed. Bloom is generally directed to a computer-based tutoring system (e.g., Abstract), but the Examiner cites Bloom for its referencing to authoring functions where a developer prepares “conversations” for tutoring (e.g., Office Action at pp. 3-4). Bloom, however, indicates that whatever text generation is done in the authoring stage is explicitly done by the author, not done automatically:

The *authoring tools* include a topic editor for developing high level topic structure, a grammar builder for building a discourse

grammar to be used in contact rehearsals that corresponds to the topic structure, a conversation author for authoring conversations to the grammar, a simulation builder for building the application simulation used during contact rehearsals, and a parameter adjuster for adjusting the instructional parameters used in making instructional decisions. (Col. 17, lines 55-63, emphasis added.)

The topic, grammar, and activity levels are all ***authored by giving a text description*** and a syntax that directly maps to the underlying knowledge structure. The topic definition permits the textual specification of the name, description, declarative topic and sub-topics. The grammar definition permits the textual specification of the name, nickname, comment, context, topics and syntax. The activity definition permits the textual specification of the name, text and comments. In addition, an action activity permits specification of the feedback, false responses, allow-anything, and commands. (Col. 17, line 64 – col. 18, line 7, emphasis added.)

Discourse grammars (144), depicted in FIG. 7, may be ***built using a standard text editor***. The discourse grammar is made up of grammar components (i.e., topics or sub-topics) that form a network such as the one represented in FIG. 8. (Col. 18, lines 51-54, emphasis added.)

Given a completed discourse grammar, instructional designers and domain experts can then begin instantiating conversations for that grammar using the conversation author of the method and system of the present invention. The conversation author is a tool that allows authors to create conversations based on specific paths through or parts of the developed discourse grammar. ***The conversation author works by having the author select the grammar path, or part, to be instantiated. Next, they either select an existing conversation to edit, or else create and name a new conversation.*** Once the conversation is identified, they then execute the author functions. (Col. 19, lines 54,65, emphasis added.)

In the case of "verbal situations", ***the author would type in*** the customer statement, request or question into the verbal situation input field. In the case of "operational situations", ***the author would type in*** the simulation situation input field, the name of the screen and field that the resulting action would take place in.

\* \* \*

In the case of "verbal actions", ***the author would type in*** the CSR's response to the customer in the verbal action input field. In the case of "operational actions", ***the author would type in*** the correct response expected in the simulation action input field. In the case "cognitive actions", ***the author would type in*** the correct

"decision" to be reached at that point in the conversation in the decision action input field. (Col. 20, lines 3-19, emphasis added.)

In addition, the disclosure of newly cited Erickson contains no disclosure or teaching of automatic text generation as claimed. Erickson is generally directed to a method of teaching the formulation of word problems (i.e., teaching students how to do word problems). See, e.g., col. 4, lines 59-61, col. 5, lines 5-8 and 54-58, col. 6, lines 3-19. The Examiner cites Erickson for disclosing a collection of sample word problems accessible via the Internet including mathematical word problems having a text phrase positioned between first and second numerical values. Office action at pp. 4-5. Notwithstanding the Examiner's allegations, Erickson contains no disclosure of generating mathematical word problems by automatically generating text phrases in the manner claimed in claim 7.

Thus, it is apparent that neither Sweitzer nor Bloom nor Erickson, either singly or in combination, disclose or teach using a processor for automatically generating a text phrase positioned between a first numerical value corresponding to the first number variable and a second numerical value corresponding to the second number variable based on the determined relationship, wherein generating the text phrase comprises automatically choosing by the processor one or more of word order, word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship, as required by claim 7. Accordingly, withdrawal of the rejection and allowance of claim 7 is respectfully requested for at least these reasons.

### **Other Independent Claims**

All of the other independent claims: 10, 20, 21, 22, 35, 40 and 41, have been amended in a similar fashion as for claim 7 to require using a processor for automatically generating a text phrase including automatically choosing by the processor one or more of word order,

word choice, word format, sentence structure, grammar, and language of the text phrase based on the determined relationship. As discussed above, neither Sweitzer nor Bloom nor Erickson, either singly or in combination, disclose or teach this subject matter. Further, the Office's reliance on Wen (for allegedly disclosing language teaching using grammatical rules) does not make up for these deficiencies. Accordingly, it is respectfully requested that the § 103 rejections of claims 10, 20, 21, 22, 35, 40 and 41 be withdrawn and that these claims be allowed.

The remaining dependent claims are allowable at least by virtue of dependency.

#### **New Claims 44-59**

New claims 44-59 have been added, support for which may be found at least at paragraph 0021 of the published application, for example. Claim 44 and similar claims recite that generating the text phrase comprises automatically resolving a context-dependent selection, and claim 45 and similar claims recite that the context-dependent selection includes at least one of a subject-verb agreement selection and an indefinite-definite article selection. This subject matter is not disclosed in Sweitzer, Bloom, Erickson or Wen, and these claims are allowable for at least this reason and also by virtue of dependency.

***Conclusion***

For at least the reasons set forth above, it is respectfully submitted that the pending claims of the instant application are allowable. A Notice of Allowance to that effect is respectfully requested.

The Commissioner is authorized to charge any fees that may be required by this paper to Jones Day Deposit Account No. 503-013 to maintain the pendency of this application.

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